

# NTU CSIE 109-2 FOOP Final Project

Team : Oops...

CSIE senior B06902136 賴冠毓

CSIE junior B07902144 彭約博

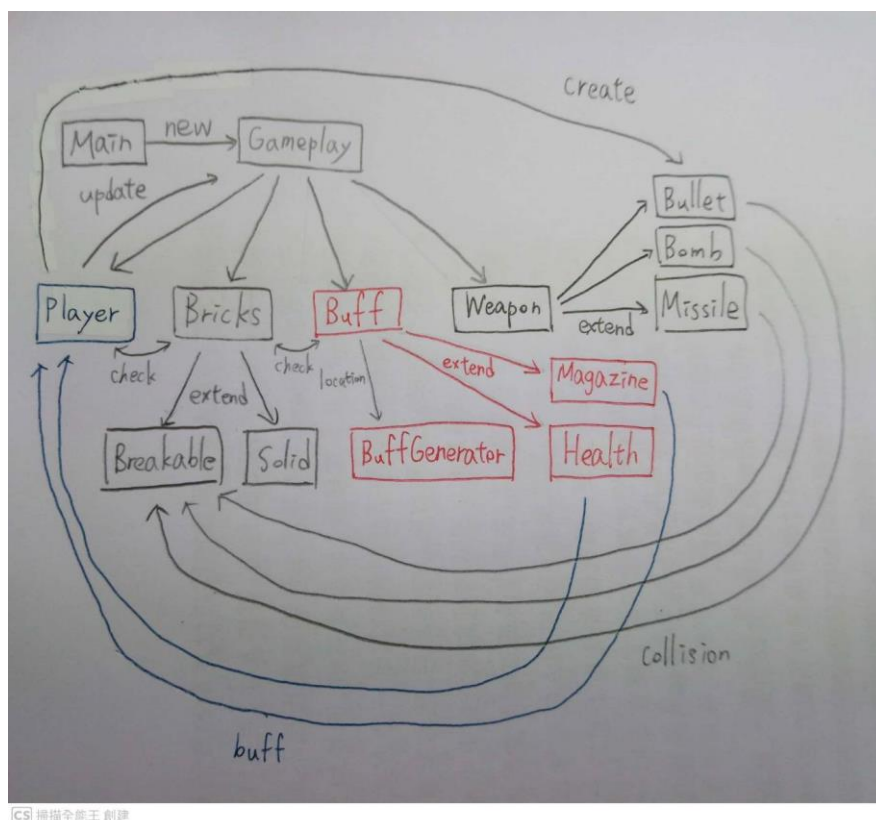
CSIE sophomore B08902149 徐晨祐

CSIE freshman B09902078 楊偉倫

## 1. how you divide the responsibilities of the team members

Year	Student ID	Name	Work
Senior	B06902136	賴冠毓	Missile, Buff, Health & Report
Junior	B07902144	彭約博	Gameplay, Player, Bullet, Buff, Magazine & bug fixes
Sophomore	B08902149	徐晨祐	Gameplay, Player, Bricks (Breakable + Solid), Explosion effects, bug fixes & Demo
Freshman	B09902078	楊偉倫	Weapon, Bomb, BuffGenerator & bug fixes

## 2. the relations between the classes that you design



(1) Main: start game

(2) Gameplay: game flow

Initialize players, bricks, weapons, buffs, and the timer.

If some actions are performed, the map must be repainted.

If the game is over, initialize everything to replay.

(3) Player:

Deal with the player's action.

(up, down, left, right, and 3 kinds of weapons)

(4) Brick: (super class)

Draw the bricks on the map.

Check the collision of bricks.

a. Breakable\_Bricks: (sub class)

It's broken when it was shot by a bullet or exploded by a bomb once.

It will disappear when it was shot by bullets or exploded by bombs twice.

It will explode when it was shot by a missile.

b. Solid\_Bricks: (sub class)

They won't be destroyed by anything.

(5) Weapon: (super class)

Deal with the creation, move, and effects of weapons..

Draw the weapon on the map.

a. Bullet: (sub class)

Basic attack.

b. Bomb: (sub class)

When it is put on the map, it will explode in 8 seconds.

It can be used 10 times in a game.

c. Missile: (sub class)

It will destroy everything in front of tank until it run into players, solid bricks, or boundaries.

It can be used 10 times in a game.

(6) Buff: (super class)

Deal with the creation and locations of buffs.

There are only one magazine and one health at a map.

Buff will be regenerated only when there is no buff on the map.

a. BuffGenerator: generate buffs on the map.

b. Magazine: (sub class)

Increase the player's numbers of bombs and missiles for 10.

c. Health: (sub class)

Increase the player's number of lives for 1.

3. the advantages of your design

- (1) Our program have clear structures.
- (2) Our program follows Open-Closed Principle (OCP), so we can add another kind of weapon or buff easily.
- (3) We have great gameplay. You can use 3 different kinds of weapons to attack another player, not just basic attack. And there are also some buffs on the map, so you don't need to worry when you run out of special weapons or lives. These buffs can help you make a comeback win!
- (4) We also have wonderful visual effects such as broken bricks and the explosion of bombs and missiles.

4. the disadvantages of your design

- (1) If there is no brick on the map, our program won't follow Open-Closed Principle (OCP). But we assure there must be at least one brick on the map because the game is more interesting if there are some obstacles between tanks.
- (2) We can't move 2 players simultaneously. Maybe we should try using threads.

5. other packages that you have used

Reference: [https://github.com/umairjameel321/tank2D\\_java.git](https://github.com/umairjameel321/tank2D_java.git)

Picture resource: <https://www.cleanpng.com/>

6. how to play your 2D game

(1) Player 1: blue

a. Move:

- ① Up: W
- ② Left: A
- ③ Down: S
- ④ Right: D

b. Weapon:

- ① Bullet: R
- ② Missile: T
- ③ Bomb: Y

(2) Player 2: red

a. Move:

- ① Up: ↑
- ② Left: ←
- ③ Down: ↓

④ Right: →

b. Weapon:

① Bullet: J

② Missile: K

③ Bomb: L

(3) Rules:

- a. Brown bricks are breakable.
- b. Gray bricks are solid.
- c. You will score only when you attack another player successfully.
- d. When one player's lives is 0, the game is over. Press SPACE to restart a new round.